advancing during the summer a distance of nine miles, which brought them within five miles of the open water and freedom! It was, indeed, tantalising to know that such a short but impenetrable barrier intervened between them and the open sea. It will be remembered that it was exactly this distance of land ice that prevented our own ship, the *Discovery*, from being liberated after her first winter in the Antarctic regions.

In spite of their disappointment, the brave Norwegians did not in any way relax their efforts to carry out the important work entrusted to them, and much valuable information in various branches of science was obtained during their long sojourn in Goose Fjord, one of the sledging expeditions having attained the high latitude of 80° 30′, almost succeeding in reaching and joining hands with Aldrich's furthest in lat. 82° 16′ and long. 85° 30′ W. on the north coast of Grinnell Land.

It was August, 1902, before the little *Fram* was released from her imprisonment, reaching Norway the following month, where the gallant explorers received after their long absence that hearty welcome, not only from their own countrymen, but from the civilised world at large, which they so richly deserved.

On the whole the expedition achieved a great success. It added very materially to our geographical knowledge of the Arctic regions, especially in the neighbourhood of the Parry Archipelago. Captain Sverdrup cleared up satisfactorily the debatable question as to whether Hayes Sound had an outlet to the west, or whether it was, as many thought, only a large bay. The western limits of Ellesmere Land, Grinnell Land, and Grant Land were determined, a matter of some geographical importance, as illustrating the archipelagic character of the land on the western side of Smith Sound and Robeson Channel.

The scientific work accomplished by the expedition is contained in four appendices at the end of the second volume. Appendix i. relates to the geological investigations made during the voyage, and is of great interest. Appendix ii. is a summary of the botanical work of the expedition and its results. Appendix iii. refers to the fauna of the different localities visited by the explorers. The scarcity, it might almost be said the extinction, of the reindeer is ascribed to wolves; these voracious animals are the great enemies of all Arctic quadrupeds, except, perhaps, the polar bear and the musk ox. Four species of butterflies were found, as well as some moths and a few wasps.

Appendix iv. refers to the meteorological observations regularly taken during the whole four years.

Much literary skill is exhibited by the author in the compilation of this work. It is written in a popular manner, and imparts valuable information in an interesting and pleasing way.

It is a book that will certainly take its place among other standard works on the Arctic regions.

An excellent map of the regions explored will be found in a pocket at the end of the second volume.

AN IMPORTANT ARCHÆOLOGICAL DISCOVERY IN EGYPT.

THE most important archæological event reported from Egypt during the last excavation season (1903–4) is the discovery by Prof. Naville, of the University of Geneva, and Mr. H. R. Hall, of the British Museum, of the most ancient temple at Thebes. The excavations were carried on by Messrs. Naville and Hall on behalf of the Egypt Exploration Fund, which is to be congratulated on having made this important discovery. The services which have been rendered by the Egypt Exploration Fund to Egyptological science since its foundation, some twenty years ago, have indeed been innumerable.

One of the most important works carried out by the fund was Prof. Naville's complete excavation of the great temple of Deir el-Bahari, in the western hills of Thebes. The excavation came to an end in 1899, after the main temple had been entirely cleared and the necessary works of conservation and restoration had been carried out, but before the environs of the temple had been completely explored. To the south of the temple lay a wilderness of rubbish heaps, which might conceal a necropolis or even another temple, placed between the great shrine built by Queen Hatshepsut and the southern horn of the *cirque* of cliffs which rise behind and around Deir el-Bahari. Means for further excavation failed, however, and the exploration of the unexcavated tract to the south of the temple was postponed until the present season, when Prof. Naville again took up the spade and very soon discovered that underneath the heaps of rubbish (Fig. 1) lay the not inconsiderable remains of a smaller temple, of high archæological importance on account of its age.

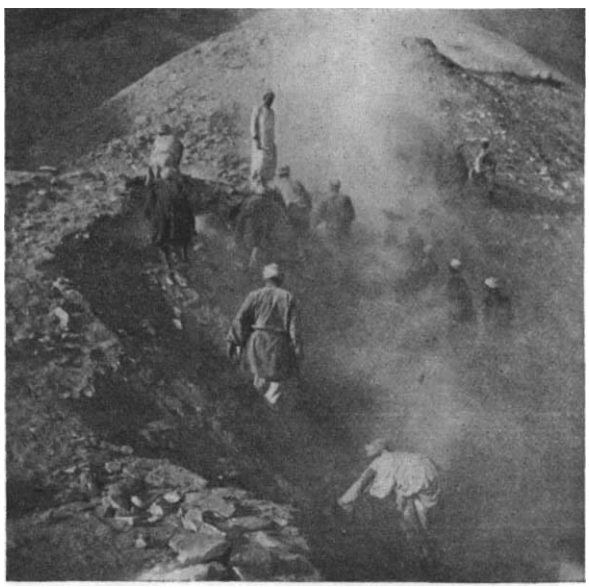

FIG. 1.—Excavators at work on the Mounds.

It is the funerary temple or mortuary chapel of the most distinguished monarch of the eleventh dynasty, Nebkherurā Mentuhetep, who reigned about 2,500 B.C., according to the best authorities. A temple of this date is a great rarity in Egypt. Remains of even older ones (of the same funerary character) have been found by the German excavators, Messrs. Borchardt and Schäfer, at Abusir, near Cairo; these belong to the fifth dynasty and are at least five hundred years older than Prof. Naville's new temple; they are the most ancient temple remains in Egypt. The new temple, however, comes next to them in age, and if it is surpassed by them in peculiarities of architecture, it appears to fully equal them in general architectural interest and to surpass them in the point of artistic interest and importance, since it has added considerably to our knowledge of the history of Egyptian art.

The artistic triumphs of the Old Empire are well known; but our knowledge of the condition of art at the beginning of the Middle Empire under the eleventh dynasty was, until the present discovery, scanty. The general impression has been that the work of the

eleventh dynasty was rough and crude in style. The discovery in the new temple at Deir el-Bahari of hundreds of fragments of coloured relief sculptures of the eleventh dynasty compels us to modify this impression, and we see from them that, side by side with the somewhat crude and awkward productions hitherto considered characteristic of this dynasty, work of the highest excellence was also turned out. This is an important result, and it is by no means improbable that this improved artistic style is the work of a sculptor who, we know, lived in the reign of Nebkherurā, Mertisen by name, and his school.

These reliefs originally formed part of the decoration of the walls of the main pillared hall of Nebkherurā's temple. This hall, only a part of which has as yet been uncovered, stands upon an artificially squared platform of rock, immediately to the south of the Hathor shrine of the great temple of Deir el-Bahari, and separated from it by a small open court about sixty feet across. The platform is about fifteen feet high. Its sides were masked by a magnificent wall of finely-squared and fitted limestone blocks, built in bonded courses of

FIG. 2.—The Granite Threshold and Pillared Hall.

broad and narrow blocks alternately, one above the other, as may be seen from the photograph. In the extreme south-west corner of the court this wall is perfect. It is without doubt one of the finest specimens of Egyptian masonry yet brought to light. Entrance to the main hall on the platform was gained, as in the great temple, by means of an inclined ramp, which led up to an entrance gate, no doubt, like that of the main temple, a trilithon of red granite; the threshold of finely-polished red granite still remains *in situ* (Fig. 2). The socket in which the door turned (in the usual ancient manner before the invention of the hinge) is clearly seen, and also the small side run, or channel, by which the door could be bodily removed from the socket and replaced when necessary.

To the north of the ramp a colonnade of small, square sandstone pillars has been discovered, placed on a stone pavement immediately before and below the platform. It can hardly be doubted that a second similar colonnade originally existed to the south of the ramp. Thus we have the main portion of the temple, consisting of a pillared, or "hypostyle," hall of octagonal pillars placed on a platform of rock, approached by an inclined ramp, flanked by colonnades on the lower ground level. It will be noticed by all who have visited Deir el-Bahari that, so far as platform, ramp, and colonnades are concerned, this is precisely the arrangement of the great temple of Queen Hatshepset, or Hatasu, to the north. This opens up a new field of possibilities. The curious plan of the great temple has puzzled archæologists and architects from Wilkinson's time to the present day. Whence this curious arrangement of platforms, inclined planes, and colonnades, so totally unlike anything else in Egypt? Various theories have been propounded, but it is only now that the solution has been found, owing to the discovery of the temple of Nebkherurā. Colonnades, platforms, and ramps are then a feature of the older temple-architecture of Egypt; they were, at the time of the eighteenth dynasty, when the great temple of Hatshepset was built, old-fashioned, archaic, but it is evident that the great temple is, as far as its main arrangements are concerned, a mere enlarged copy of the thousand-year older temple at its side; it is simply a "magnificent archaïsm."

When it was built the older and smaller temple was still used as a temple, apparently, and both existed side by side for some time; this is shown by the fact that the later temple is not placed in the centre of the *cirque*, but is crammed up against the northern cliff-face; it could not be placed in the exact centre because the southern portion of the space at Deir el-Bahari was already occupied by the older temple. It was built roughly parallel to the older temple; it is oriented 24° S. of E. (Lockyer, "Dawn of Astronomy," p. 212), and this must be more or less the orientation of Nebkherurā's temple also. This fact is of interest, as the question might be mooted whether the orientation of the main temple is also an archaïsm, imitated from that of Nebkherurā's temple (B.C. 2500), or not. Sir Norman Lockyer has already postulated ("Dawn of Astronomy," p. 218) the existence in the western hills of Thebes of a temple of Hathor older than the shrine of the goddess at Deir el-Bahari, "built to observe the rising of the star [Hathor-Sothis, *i.e.* Sirius] at a time perhaps somewhat later than that given by Biot (3285 B.C.)." Nebkherurā's date is about 2500 B.C., but we have as yet no proof that in his funerary temple the reverence paid to his spirit was conjoined with a worship of Hathor. We may find this proof in the course of the further excavations, or the older temple of Hathor may have existed further to the southward, perhaps on the site of the present little temple dedicated to Hathor of the Waste at Deir el-Medîna, which was originally founded in the reign of Amenhetep III., B.C. 1450. Certain it is that the worship of Hathor in the western hills is far older than the time of Amenhetep III. and Hatshepset, and the foundation of the oldest temple built in her honour at Deir el-Bahari or Deir el-Medîna may well go back to very near the date propounded by Biot for the first systematic observation of the heliacal risings of Sothis-Hathor (Sirius). It is to this very period—between 3285 B.C. and 2400 B.C.—that the beginnings of the Theban Empire and of the Theban temples must be placed. To the student of the astronomical orientation of Egyptian temples the new discovery will, therefore, be of the highest interest.

Among the large number of smaller objects discovered in the course of the excavations, the most interesting will probably prove to be the series of small *ex-votos* of devotees of Hathor, found in the court between the two temples. These consist of small cows (the sacred animal of the goddess), and female figures in earthenware and blue faïence, votive eyes and ears

in bronze and faience, broken blue vases with representations of the holy cow emblazoned with stars, &c. These votive offerings, which nearly all date to the eighteenth dynasty, were undoubtedly originally devoted in the Hathor shrine of the great temple, and when the shrine became too full were thrown down by the sacristans into the space between the two temples, which thus became a dust-heap. And from this dust-heap many interesting objects have been recovered, including a copper chisel with hardened edge, which should be of special interest to metallurgists, and specimens of palm-fruit, nuts, reeds, and shells, dating to about 1500 B.C. One of the most remarkable objects found is a perfect three-cornered loaf of unleavened bread, of the same date. All these smaller objects, together with a number of specimens of the eleventh dynasty reliefs already described, will, we understand, be exhibited at the annual exhibition of the Egypt Exploration Fund at University College, Gower Street, in July next.

Subscriptions for the work of the Egypt Exploration Fund are much needed, and should be sent to the Secretary, 37 Great Russell Street, W.C. We are indebted to Mr. Hall for the photographs here published.

NOTES.

THE achievements of the Japanese in the war are causing increased attention to be given to the influence of brain-power on history. National enlightenment, and the scientific spirit which welcomes every increase of knowledge, are the two chief factors of progress in these days, and the Japanese successes have shown the power of both these attributes. An important article in the *Neue Freie Presse* of Vienna lays emphasis upon the use which Japan has made of its brain-power; and the following extract from a summary published in Monday's *Times* shows how the prediction made by Sir Norman Lockyer in his address to the British Association last year is being fulfilled:—"Japan has adopted modern civilisation with soul and body. She has not merely copied those externals of modernity which rob an uncivilised people of originality without giving any real value in exchange, but she has assimilated eagerly the ideas of modern culture. Modern are her schools, in which the children of all creeds are taught morals, but not religion, in order to avoid all ecclesiastical intolerance. Modern is her view that priests should refrain from political struggles, and should reserve themselves for the leading place in pious exercises. Modern is her wish, despite many a hard rub during the time of transition, to respect without prejudice all free-minded criticism of public affairs and not to crush opposition by brute force, or, worse still, to intimidate it by a system of crafty calumny. Modern also are her sincere respect for freedom of research, her joy in a conception of the universe which makes intelligence, not superstition, the regulating power of human acts, and greets with gladness every new discovery and every new thought; and modern is a policy which incites minds to development instead of fettering them, which favours instead of suppressing the sheer delight in material production."

A CONVERSAZIONE of the Institution of Electrical Engineers will be held at the Natural History Museum on the evening of Tuesday June 28.

THE death is announced of Dr. Max Kaech, officer in charge of the geological collections of the national museum of natural history and ethnography—the Museu Goeldi—at Para, Brazil.

A MEETING of members of council of the South African Association for the Advancement of Science was held at Johannesburg on May 19, Mr. T. Reunert presiding. The chairman reported that he had been in communication with the German, French, Austrian, and Italian Consuls, and was hopeful of the cooperation of these gentlemen in connection with the visit of Continental delegates to South Africa with the British Association next year. Dr. Pakes, referring to the impending departure of Mr. Reunert for England, mentioned that he would represent the South African Association at the forthcoming Cambridge meeting of the British Association.

THE Antarctic ships *Discovery* and *Morning* have sailed from Lyttelton for Plymouth.

THE Institution of Electrical Engineers visited Colchester on Saturday on the occasion of the formal reception and unveiling of an historical picture presented by the institution to the town of Colchester in commemoration of the tercentenary of Dr. William Gilbert, the "father of electrical science," who was born in Colchester.

IN connection with the St. Louis Exposition, an International Electrical Congress has been arranged from September 12 to 17. It will be divided into eight sections, for which the following have been appointed chairmen and secretaries respectively:—A, general theory, Prof. E. L. Nichols, Prof. H. T. Barnes; B, general applications, Prof. C. P. Steinmetz, Prof. Samuel Sheldon; C, electrochemistry, Prof. H. S. Carhart, Mr. Carl Hering; D, electric power transmission, Mr. C. P. Scott, Dr. Louis Bell; E, electric light and distribution, Mr. J. W. Lieb, jun., Mr. Gano S. Dunn; F, electric transportation, Dr. Louis Duncan, Mr. A. H. Armstrong; G, electric communication, Mr. F. W. Jones, Mr. B. Gherardi; H, electrotherapeutics, Dr. W. J. Morton, Mr. W. J. Jenks. It is at present intended to limit the number of papers to 150, and the transactions are expected to fill three octavo volumes. Mr. Elihu Thomson is president, and Dr. A. E. Kennelly, of Harvard University, general secretary of the congress.

THE annual general meeting of the Ray Society was held on June 9, Lord Avebury, president, being in the chair. The report announced the attainment of the society's sixtieth year; the death of two vice-presidents, Dr. C. H. Gatty, F.R.S., and Mr. R. McLachlan, F.R.S.; the completion of Newstead's "British Coccidæ" and of Michael's "British Tyroglyphidæ." The volumes to be issued during this year and next were stated to be:—Vol. i. of the "British Desmidiaceæ," by Mr. W. West and Prof. G. S. West; vol. i. of the "British Tunicata," by the late Joshua Alder and the late Albany Hancock; vol. i. of the "British Freshwater Rhizopoda and Heliozoa," by James Cash; and vol. ii. of the "Desmidiaceæ." The officers and council elected for the ensuing year were:—President, Lord Avebury, F.R.S.; vice-presidents, Dr. R. Braithwaite, Mr. A. D. Michael, and Lord Walsingham, F.R.S.; treasurer, Dr. DuCane Godman, F.R.S.; and secretary, Mr. John Hopkinson.

THE use that is being made of wireless telegraphy in connection with the war is shown by the following extract from a private letter received from the *Times'* operator at Wei-hai-wei, and published in Wednesday's issue:—"All the British warships, from the third-class cruisers up, are equipped with Marconi, about twenty-four in all; nearly all the Japs have wireless equipment; the Russian ships are equipped, and several German vessels. One or another of them can be heard any time, day or night. The Japs are